

ABSTRACT OF THE DISCLOSURE

The effects of lighting and resulting shadows within a computer simulated three-dimensional scene are modeled by rendering a light depth image and a light color image for each 5 of the light sources. The light depth images are compared to a camera depth image to determine if a point within the scene is lighted by the various light sources. An accumulated light image is produced by combining those portions of the light color images determined to be lighting the scene. The 10 resulting accumulated light image is then combined with a camera color image to produce a lighted camera image that can be further processed and eventually displayed on a computer display screen. The light color image can be static or dynamic. Transformations between different perspective and/or 15 coordinate systems can be precalculated for fixed cameras or light sources. The various images and manipulations can include individual pixel data values, multiple-pixel values, polygon values, texture maps, and the like.